

## AMENDMENTS TO THE CLAIMS

### **1-5. (Cancelled).**

**6. (Currently Amended)** A gas engine electric power generating system comprising:

an electric power generating apparatus including an electric power generator coupled to a pilot fuel oil ignition type gas engine having at least one cylinder and a cylinder pressure detector;

a combustion diagnosis apparatus for diagnosing a combustion condition within the gas engine in response to a cylinder pressure detector signal;

a combustion controller that adjusts a fuel mixture comprising recovered methane gas having a methane concentration of 30-50% and ventilated methane gas having a methane concentration of 0.3-0.7 % in the gas engine in response to a combustion condition signal from said combustion diagnosis apparatus; and

a gas injection device that ~~introduces~~provides the fuel mixture for introduction into the cylinder while mixing the recovered methane gas and the ventilated methane gas to define a lean methane/air mixture having a methane concentration of 3-5% and having an air excess ratio not less than 2, such that the gas engine operates to produce electric power.

**7. (Previously Presented)** A gas engine electric power generating system in accordance with claim 6 wherein said combustion controller adjusts the fuel mixture by comparing a maximum pressure ratio defined as  $P_p/P_o$  against predetermined pressure ratios each corresponding to at least one of a plurality of diagnoses, where  $P_p$  is a maximum cylinder pressure in a cycle and  $P_o$  is a compression pressure for at least one predetermined crank angle in a compression stroke, to facilitate preventing engine knock and engine misfire.

**8. (Previously Presented)** A gas engine electric power generating system in accordance with claim 6 further comprising a coal mine that supplies the recovered methane gas and the ventilated methane gas.

**9. (Previously Presented)** A gas engine electric power generating system, said system comprising:

an electric power generator coupled to a pilot fuel oil ignition type gas engine having at least one cylinder and a cylinder pressure detector;

means for diagnosing a combustion condition within the gas engine in response to a signal from the cylinder pressure detector;

means for adjusting a fuel mixture of recovered methane gas having a methane concentration of 30-50% and ventilated methane gas having a methane concentration of 0.3-0.7% in the gas engine in response to a combustion condition signal from said means for diagnosing a combustion condition; and

means for introducing the fuel mixture into the cylinder while mixing the recovered methane gas and the ventilated methane gas to define a lean methane/air mixture having a methane concentration of 3-5% and having an air excess ratio not less than 2.

**10. (Previously Presented)** A gas engine electric power generating system in accordance with claim 9 wherein said means for adjusting the fuel mixture further comprises comparing a maximum pressure ratio defined as  $P_p/P_o$  against predetermined pressure ratios each corresponding to at least one of a plurality of diagnoses, where  $P_p$  is a maximum cylinder pressure in a cycle and  $P_o$  is a compression pressure for at least one predetermined crank angle in a compression stroke, and facilitates preventing engine knock and engine misfire.

**11. (Previously Presented)** A gas engine electric power generating system in accordance with claim 9 further comprising a coal mine that supplies the recovered methane gas and the ventilated methane gas.

**12-13. (Canceled)**